FOCUS

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Expert Panel Chooses "Exemplary" & "Promising" Math Programs

An expert panel chosen by the US Department of Education has completed a review of 61 school mathematics programs and has released a report naming five "exemplary" programs and five "promising" programs. The intention is to furnish schools, teachers, policy-makers, and parents with guidance as to what are the best mathematics programs.

The evaluation was conducted by an Expert Panel in Mathematics and Science Education set up at the direction of Congress "to evaluate educational programs and recommend to the Secretary of Education those programs that should be designated as exemplary or promising." The panel, which includes a wide range of education experts four of which are members of the MAA (the full list can be found at the web address below), has been in operation for a year. Mathematics programs were chosen as a focus of the first year, with other reports to come.

The panel had an open admission process that encouraged applications from any mathematics programs that wished to be reviewed. The report states that 61 programs submitted applications (the list is not given). The programs were reviewed using eight criteria that range from assessment of content and learning goals to measurable effectiveness in a variety of settings. One of the criteria required programs to "reflect the vision promoted in national standards in mathematics education." The panel specifically looked for programs that conformed to the NCTM

Expert Panel continued on page 3

Mathematics at the AAAS in February

The year 2000 meeting of the American Association for the Advancement of Science (AAAS), will be held on February 17 to 22 in Washington, DC, and as usual Mathematics will be present in the program in a strong way. Many outstanding expository talks by prominent mathematicians will be featured, both in symposia (three-hour sessions) and invited talks sponsored by Section A (Mathematics). Warren Page, an MAA member and Secretary of Section A of the AAAS, reports that: "I have found the Program Committee to be genuinely interested in symposia on mathematical topics related to current issues. The Section A Committee is looking for organizers and speakers who can present substantial new material in ways that are understandable to a general scientific audience. I invite you to attend our Section A Committee meeting, from 7:30 to 10:30 PM on Friday, February 18. The committee meeting is open to all who wish to stimulate interest in and activities related to the mathematical sciences within AAAS. Please send me, and encourage your colleagues to send me, symposia proposals for the AAAS Annual Meetings." The Section A Committee is eager to encourage more mathematicians to participate in the annual AAAS meetings, which are "showcases of American science" and include a broad range of symposia and talks on many fields. Warren Page can be reached by email at wxpny@aol.com or by fax at 914-746-6446. A list of mathematics-related events planned for the AAAS meeting in February appears on page 7. ■

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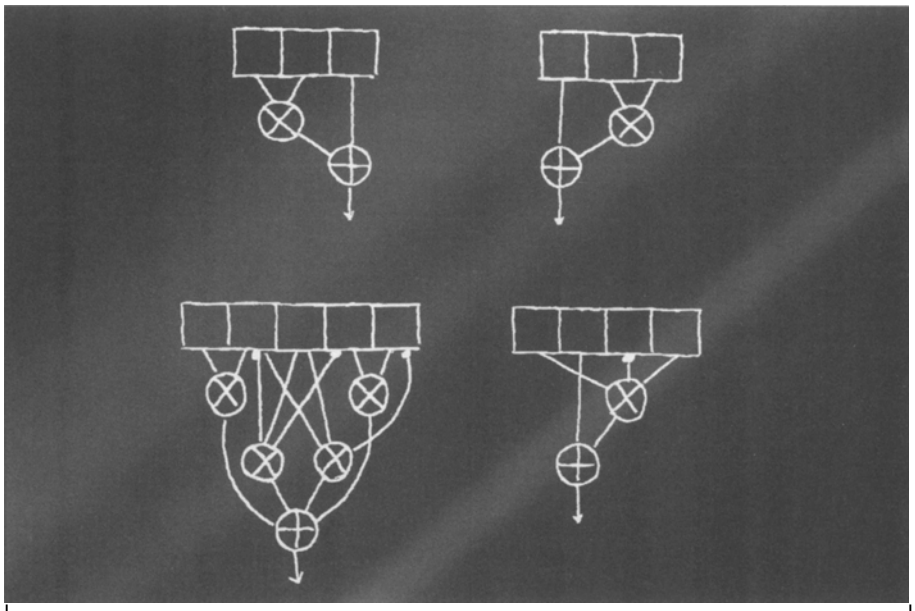

Intrigued?

Then consider joining a highly talented group of mathematicians who deduce structure where it is not apparent, find patterns in seemingly random sets, create order out of chaos—these are the mathematicians of the National Security Agency. They apply Number Theory, Group Theory, Finite Field Theory, Linear Algebra, Probability Theory, Mathematical Statistics, Combinatorics, and more to a world of challenges. They exchange ideas and work with some of the finest minds—and most powerful computers—in the country.

If you like the idea of solving real-world problems, look into a career with NSA. Visit us at booth 92/93 during the Joint Math Meetings. Send your resume and transcripts, in confidence, to: **National Security Agency, Suite 6779, S23-(AMP), 9800 Savage Road, Ft. George G. Meade, MD 20755-6779.**

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FOCUS Deadlines

	February	March	April
Editorial Copy	December 15	January 19	February 15
Display Ads	January 4	February 4	February 22
Employment Ads	December 30	February 2	February 18

Dinner for Marcia Sward to Be Held at National Meeting

Marcia Sward

On Saturday, January 22, 2000, a dinner will be held to honor Marcia Sward, who is leaving the MAA after serving as its Executive Director for the last ten years. All participants at the winter meeting are cordially invited to this send-off because the MAA wishes to demonstrate how much her dedicated service has meant to the organization and to the mathematics community. Cocktails will be served at 7 p.m. (cash bar), followed by dinner at 7:30 p.m. at the Marriott Wardman Hotel in Washington, DC. Tickets can be ordered directly on your meeting registration form. ■

Expert Panel continued from page 1

Standards and the AAAS *Benchmarks*. The evaluators emphasized that programs should have made a significant, measurable difference in student learning.

Five programs were listed as "exemplary": *Cognitive Tutor Algebra*, *College Preparatory Mathematics*, *Connected Mathematics*, *Core-Plus Mathematics Project*, and *Interactive Mathematics Program*. Five others were listed as "promising": *Everyday Mathematics*, *MathLand*, *Middle-school Mathematics through Applications Project*, *Number Power*, and *The University of Chicago School Mathematics Project*. A short description of each of the programs is included in the Expert Panel Report, which can be found on the web at http://www.enc.org/exemplary or can be ordered by calling 877-433-7827.

Since measurable results were one of the criteria, programs that have as yet been adopted by only a few school systems had little chance of making the list. The work of the expert panel will continue, however. Next year science programs will be reviewed, and in 2001, the expert panel will once again examine mathematics programs, giving newer programs a second chance to be reviewed. ■

Short Takes

Training Teachers to use Technology

In September the Department of Education awarded about $75 million in grants to help prepare teachers to use technology in their classrooms. The program, called "Preparing Tomorrow's Teachers to Use Technology," tries to prepare teachers to use the computers that are present in so many classrooms.

The majority of teachers report feeling unprepared to use technology, perhaps because many college education departments have not been able to invest in upgrading computer equipment and retraining faculty.

More details about the PTTT program, including a list of programs that have been funded, can be found at the http://www.ed.gov/teachtech/ web site.

Rose-Hulman Undergraduate Mathematics Conference

This year's Rose-Hulman Undergraduate Mathematics Conference will be held on March 17 to 18 on the Rose-Hulman Campus in Terre Haute, Indiana. Frank Morgan and Nigel Boston will be the invited speakers.

The conference aims to "spotlight and celebrate the accomplishments and work of undergraduate mathematicians." Check the conference web page at http://www.rose-hulman.edu/Class/ma/HTML/Conf/UndergradConf.html for more information.

Lots of π

Yasumasa Kanada, of the Computer Science Division of the Information Technology Center, University of Tokyo, has announced that his team has succeeded in computing 206,158,430,000 decimal digits of π. The team conducted "two independent calculations based on two different algorithms." Each yielded 206,158,430,208 ($=3\times2^{36}$) decimal digits of π; comparing the two showed that they agreed to 206,158,430,163 decimal digits.

With only 45 digits being different, the team feels it can safely claim to have 206,158,430,000 correct decimal digits, a new world record. The 200 billionth digit of π turns out to be a 2.

Look at ftp://www.cc.u-tokyo.ac.jp/README.our_latest_record to learn more about the current status of the project.

Mars Orbiter Lost Because of Inconsistent Units

In what was widely described as a "math error," NASA lost the $125 million "Mars Climate Orbiter" because the force exerted by the orbiter's thrusters was expressed in inconsistent units. Engineers at Lockheed Martin expressed the thrust in terms of pounds of force, while scientists at the Jet Propulsion Laboratory assumed the numbers were given in newtons. As a result, the satellite dipped 100 kilometers closer to Mars than had been planned and was lost. Everyone involved was dumbfounded that such a mistake could happen. Reports are that software is now being developed to check for such errors in the future.

Another Fermat non-prime

In what he described as "the deepest computation in history whose result was a simple yes/no answer," Richard Crandall of the Center for Advanced Computation at Reed College, together with Ernst Mayer, formerly of Case Western Reserve University and Jason Papadopoulos of the University of Maryland, have verified that the 24th Fermat number, $2^{2^{24}}+1$, is not a prime number. Visit http://www.perfsci.com/ for more information.

Mathematics and Art Workshop

Viewpoints, a workshop on "Mathematics and Art" sponsored by the Eastern Pennsylvania and Delaware Section of the MAA, by Franklin and Marshall College, and the Mathematics Throughout the Curriculum initiative of the National Science Foundation, will be held in June 2000 at Franklin and Marshall College. The workshop facilitators will be Annalisa Crannell and Marc Frantz. Visit the web site http://www.fandm.edu/Departments/Mathematics/m_frantz/viewpoints for more information.

Finding Jobs For Math Majors

by Dan Callon

"What can you do with a mathematics major?" I'm sure you have heard that question from potential students, from parents, from upper-class students contemplating graduation. Do you have a good answer, or do you stumble after citing actuary and mathematics teacher? If we disallow jobs requiring an advanced or specialized degree (e. g., statistics, operations research), we often get stuck at this point. What options are open to the student who doesn't make *A*'s? How do you sell students on the benefits of a mathematics major while acknowledging the vast number of jobs available to computing majors?

For those of us responsible for constructing and implementing the curricula at our institutions, these questions cause related questions to spring to mind. Are we really preparing the students for the world they will experience or for the one we encountered as graduate students *x* number of years ago? What changes do we need to make in content and pedagogy? Are our graduates prepared to get their first job? Are they ready to make the adjustments necessary as they advance through their careers?

As a sabbatical project during the spring semester of 1998–1999, I investigated what entry-level employment opportunities exist for "typical" bachelor's degree recipients with a mathematics major (*B* average, adequate extracurricular activities, reasonable work habits). I searched through electronic and print media, contacted Franklin College mathematics alumni employed in a diverse array of positions in businesses and government agencies across the United States, and worked through colleagues and professional contacts to reach a variety of sources with varying perspectives on the issues raised. The results have been enlightening, challenging, and thought-provoking, and stimulated so many other questions that I would need a two- or three-year sabbatical to adequately address them. (So far my dean is reluctant to go for that idea.)

Given the many avenues which could be explored, I'll limit myself in this article to the main question of why employers hire mathematics majors and some examples of specific entry-level jobs. For more details about what employers look for in the hiring process, the implications for departmental curricula, or what future trends bear watching, check out my web page (http://www.franklincollege.edu/pwp/callond/).

I asked employers why they would hire a mathematics major rather than a major in another field, including computing. Their responses fell into four main categories.

One reason for looking for mathematics majors is their quantitative skills. There is a great need for people able to work with numbers. This demand is especially prominent in traditional social science areas, where many workers struggle to understand basic statistics. A student with a mathematics major and the equivalent of a minor in a field such as journalism, sociology, economics, or psychology should have several avenues open to him or her. Positions in human resources involving compensation and benefits analysis or pension assets management and those in all areas of finance would fit within this category.

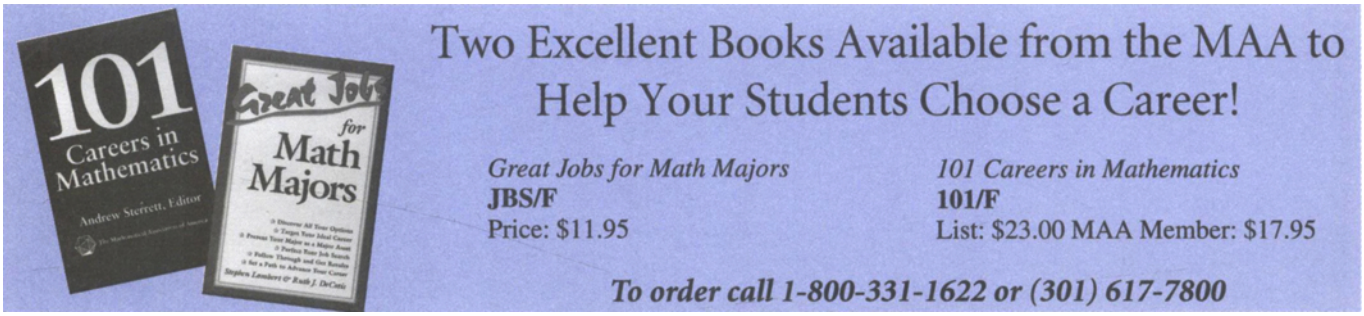
Another frequently cited reason for hiring a math major is to draw conclusions from data. Businesses are wallowing in mounds of data obtained from a variety of sources, and anyone who can sift through those databases and recommend one or two specific actions for the company to take in response will soon make himself or herself invaluable. While they look to computing majors to store and transmit the data, they still need someone to analyze and synthesize the data. A more focused way to utilize these same skills is in quality control.

The remaining two reasons employers cite for being interested in hiring mathematics majors involve the traditional selling points of problem-solving and analytical and logical thinking. Jobs focusing on planning and structure, including project management or materials and inventory management, can provide the necessary foot-in-the-door for a wide variety of careers. Those with the requisite computing background might also want to consider systems analysis.

There are even more opportunities if students are willing to invest in double majors or some type of hybrid major. As an example of the latter, we have introduced a *quantitative analysis* major in mathematics at Franklin which involves our basic mathematics core plus components in computer modeling, economics, accounting, and a special emphasis in either finance or marketing. Examples of other areas which might be amenable to such an approach would be environmental sciences and bioinformatics.

I've found this project to be an ever-growing one, resisting my attempts to wrap it up and constantly shooting off in new and unexpected directions. I'd welcome any input or feedback you might provide, either regarding specific types of jobs or the implications for what we teach and how we teach it. ■

(Dan Callon, who is Chair of the Indiana Section of the MAA, may be reached by email at callond@franklincoll.edu. *This article first appeared in the Newsletter of the Indiana Section of the MAA.)*



Introducing *Mathwright*

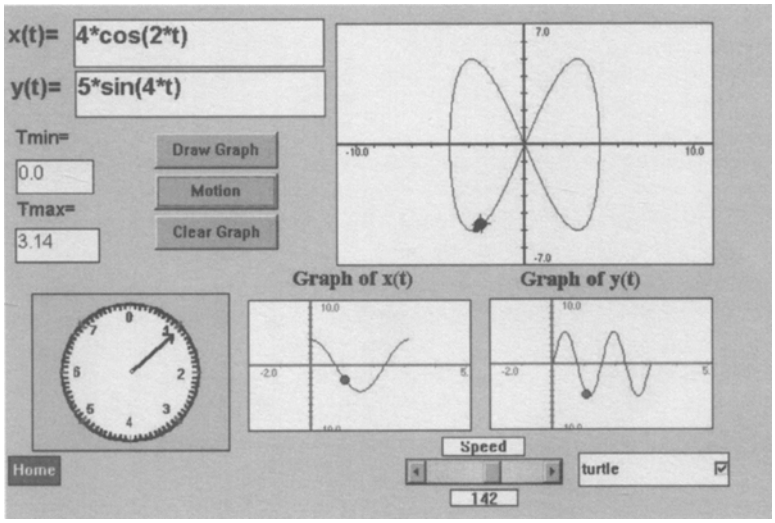
by Dan Kalman

There is a web site that every teacher of undergraduate mathematics should know about — the *New Mathwright Library*, located at http://www.mathwright.com/ There, you and your students can download wonderful computer explorations of mathematical topics. These explorations were developed by teachers, and they offer a rich resource for math teachers everywhere.

Mathwright software has two components, one for authoring and one for viewing computer activities. By way of analogy, the viewing software is like a web browser, while the author software is like a word processor that creates web pages. The *Mathwright Library Player* is the viewing software; it can be integrated with either *Netscape* or *Internet Explorer*. At present, this only works in the Windows environment, but a new version is under development that will be compatible with any machine that supports internet browsers. Once you have installed this software, you can visit the *Library* "stacks" and select some of the activities in the collection. Downloading and "playing" an activity is like visiting a web page, with one important difference: you can elect to keep the activity on your computer and run it again at any time.

What do the activities look like? In many respects they are similar in spirit to web pages, especially the interactive mathematics "applets" that are becoming increasingly common (see, for example, *Cut the Knot*, a regular column at **MAA Online**). *Mathwright* activities bring mathematics to life with color, sound, animation, and text. The intent of these pages is to encourage students to experiment with mathematical objects and relationships, using the familiar point and click style of the internet.

A few weeks ago, I used an activity from the *Library* in my Calculus class. We were just beginning a unit on plane parametric curves. To give students some hands-on experience, I had them work with a *Mathwright* activity by Mike Pepe, called "Plane Curves." One page from this activity contains a simple parametric equation grapher. On one area of the screen, students type in expressions for x(t) and y(t). Then, at the touch of a button, they obtain static or animated graphs of x and y as functions of time, as well as the trajectory of (x(t),y(t)) in the plane. For the animated display, a simulated stopwatch shows the passage of time. In just a few minutes, students can experiment with the relationships between the component function graphs and the trajectory, entering a variety of expressions for x and y and watching the results. This was my students' first exposure to *Mathwright*, and within five minutes they were working away busily, engrossed in the behavior of parametric equations.



A simple parametric equation grapher, from the "Plane Curves" Mathwright activity by Mike Pepe.

The *Mathwright Library* presents some of the best computer activities developed by participants in the MAA's *Interactive Mathematical Text Project*, which ran workshops around the country from 1992 through 1994. All of the teachers who participated in IMTP *Mathwright* workshops quickly learned to create *Mathwright* computer activities and developed at least one complete activity during the workshop. Many participants continued to refine and polish their projects after the conclusion of the workshops. These projects form the core of the *Library* collection.

The activities available at the *Library* are finished products, ready for use in class or at home. Like web pages, these activities can be viewed and appreciated with little or no understanding of the process by which they are created. But for those who would like to create or modify such activities, the *Mathwright Author* software deserves special mention. It allows the designer to build a screen layout interactively, selecting components (like graphs or push buttons) from a menu and positioning and sizing them on the screen with the mouse. Underlying all these components is a mathematical scripting language with sufficient expressive power to specify just about any mathematical abstraction.

With this tool, it is easy to create activities that are tuned to specific educational objectives and that feel natural and intuitive to students. The process is fast and simple, so it is easy to modify and improve activities. You can also build on the work of others. For example, I created a modified version of Pepe's parametric equations activity that emphasized vector rather than scalar functions of time. The screen layout and interactions were left intact, but the student input areas were formatted to look like a single vector equation rather than two scalar equations. In this way, I was able to fine-tune a very effective computer activity to a particular instructional goal, slightly different from the original purpose of the activity.

Mathwright and the *Library* site offer a marvelous resource for math teachers. You can learn more by visiting the site. There is a review by Angela Hare of the *Mathwright Author* software in the *College Mathematics Journal* (CMJ), 28(2), March 97, page 140. A review of the *Library* web site can be found in the November 99 issue of *CMJ*. ■

Finding Out About Fuzzy Mathematics

The MAA will be offering a short course on *Fuzzy Mathematics* on January 17–18, 2000 in Washington, DC, just before the Joint Mathematics Meetings. The short course will be made up of a series of talks, described below. You can sign up for the short course when you register for the meeting.

Topics In Fuzzy Mathematics
John Mordeson
Center for Research in
Fuzzy Mathematics
Creighton University

This talk will discuss fuzzy abstract algebra, fuzzy topology, and fuzzy graphs. Fuzzy set theory, fuzzy numbers, and fuzzy analysis will be touched upon. In algebra, there are generating properties that are common to all algebraic structures. These properties often lead to numerical invariants that completely characterize the structure. We will show how these properties carry over to fuzzy substructures, and illustrate our results with examples from fuzzy subgroup theory, fuzzy ideal theory, and the theory of fuzzy subspaces. For fuzzy topology, we will fuzzify the concept of a topological space and define fuzzy continuity for fuzzy functions of topological spaces. For fuzzy graphs, we will define and study such concepts as fuzzy bridges, fuzzy acyclic graphs, and fuzzy trees. We will show how fuzzy graphs can be used in cluster analysis. We will introduce briefly the notion of a fuzzy hypergraph and indicate some possible applications to industry. A few necessary remarks on fuzzy set theory will be given, including the concepts of level sets of a fuzzy subset, Cartesian product of fuzzy subsets, and convexity for fuzzy subsets. Historical comments will also be given.

Fuzzy Geometry
Azriel Rosenfeld
Director of the Center
for Automation Research
University of Maryland

Many basic geometric properties and relations can be generalized to fuzzy subsets of a space. This talk will describe how various standard geometric concepts can be extended to fuzzy subsets of the plane. These concepts include adjacency, connectedness, separation, and surroundedness; distance and relative position; area, perimeter, extent, and diameter; convexity and starshapedness; and elongatedness. Applications of these concepts in image processing and analysis will also be briefly discussed.

Selected Applications From Fuzzy Logic And Neural Networks
Rod Taber
Ring Technology

There are numerous applications that benefit from the introduction of fuzzy logic. In this talk, I will present theory and show practical examples from two areas of research. The first is modeling non-linear systems with the fuzzy cognitive map. Examples include limit cycle behavior and prediction of the effects of the marine neurotoxin domoic acid and the prophylactic benefit of valium given prior to ingestion of contaminated shellfish. The second area is the recognition of killer whale calls and acoustic ship signatures with the neuron ring—a model neural network that almost always failed to recognize test signatures until fuzzy logic entered the picture. Adding simulated hardware registers to each neuron changed the model so that it almost always emitted the correct answer. I will demonstrate how the neuron ring and its neurons work with killer whale calls from around the world.

Fuzzy Sets And Applied Fuzzy Logic
Abe Kandel
Department of Computer Science
and Engineering
University of South Florida

The primary purpose of this presentation is to provide the audience with a comprehensive coverage of theoretical foundations of fuzzy set theory and fuzzy logic, as well as a broad overview of the increasingly important applications of these novel areas of mathematics. No previous knowledge of fuzzy set theory and fuzzy logic is required for understanding the material covered in the presentation. The fundamentals of classical (nonfuzzy) set theory and classical (two-valued) logic will be briefly reviewed. Examples will be used to illustrate concepts, methods, and generic applications.

Fuzzy Sets And Statistics, With Application To Biomedicine
Gregory Campbell, Center for Devices
and Radiological Health
Food and Drug Administration

The topic of fuzzy sets and their accompanying degree of membership function has a number of important applications in biomedicine. For a large number of classifications, simple dichotomy is naive at best. For example, with regard to a disease, the question is often one of degree or staging and not simply whether or not the patient has the disease. The use of this degree of membership information and its relationship to probability and Bayesian statistics will be explored. The relationship between fuzzy concepts and statistics will be discussed, with particular attention to logistic regression. In the area of diagnosis, a statistical technique called Receiver Operating Characteristic Plots is often used. This concept will be generalized using fuzzy sets and we will show that the fuzzy approach is more powerful. Predictive models with attention to artificial neural networks will be mentioned briefly, and medical applications will be presented.

Foundations Of Fuzzy Rules And Their Roles In Intelligent Agents
John Yen, Director of Center for Fuzzy
Logic, Robotics, and Intelligent Systems,
Department of Computer Science
Texas A&M University

Fuzzy rules have been used to develop a broad range of industrial applications of fuzzy logic. However, there has been some confusion about the foundations of fuzzy rules. In this tutorial, I will discuss the formal foundations of two different types of fuzzy rules: fuzzy implication rules and fuzzy mapping rules. The former is based on logic, while the latter is related to function approximation. I will also discuss the roles of fuzzy rules in intelligent software agents, which are computer programs that are autonomous, distributed, and cooperative. Application areas of intelligent agents include personal assistant software, personalized Web-based services, E-commerce, NASA's remote agent in Deep Space 1, and virtual digital forces in DOD's space battle simulation environment. ■

MAA Adding SIGMAAs to its Membership Benefits

The MAA is instituting a program of Special Interest Groups (SIGMAAs) for its members. SIGMAAs will provide MAA members who share common mathematical interests with opportunities to organize and interact professionally.

SIGMAA activities may include holding meetings and receptions, creating newsletters and web pages, facilitating research and publications, working with other MAA organizations, and generally sharing ideas and establishing a network of interested colleagues. SIGMAAs can act as "surrogate departments," fostering communication and activity among those with similar interests but who are working in diverse settings.

The MAA Board of Governors approved the creation of SIGMAAs at the Providence meeting in July. A Task Force on SIGMAAs, chaired by Ed Dubinsky, has been appointed to oversee the formation and operation of SIGMAAs. The first SIGMAAs will be announced at the January Meetings in Washington. Members may propose the creation of SIGMAAs at any time.

Any group of MAA members may propose the creation of a SIGMAA by submitting an application to the MAA Task Force on SIGMAAs. This group has developed a set of procedures and a model charter for interested parties to follow. The application involves three items: a charter, a list of founding members, and a slate of current officers.

Detailed application information and the model charter are available on the Web at http://www.maa.org. For more information, contact Ed Dubinsky (edd@zeus.cs.gsu.edu). ■

Have You Moved?

The MAA makes it easy to change your address. Please inform the MAA Service Center about your change of address by using the electronic combined membership list at MAA Online (www.maa.org) or call (800) 331-1622, fax (301) 206-9789, email maaservice@maa.org, or mail to MAA, P.O. Box 90973, Washington, DC 20090.

Mathematics-Related Events at the February AAAS Meeting

Mathematical Symposia and Talks

- *The Reasonable Effectiveness of Mathematics in Hollywood, Industry, and Daily Life* (organized by Lenore Blum and Felix Browder)
- *The Reasonable Effectiveness of Mathematics: Complexity and Computation — Paradigms for the 21st Century* (organized by Lenore Blum and Felix Browder)
- *Predicting More, Assuming Less — A Game-Theoretic Approach to Inductive Inference* (organized by Yoav Freund and Bakesh Vohra)
- *Earth, Sea, and Sky: Mathematical Modeling in the Earth Sciences* (organized by Barbark Keyfitz)
- *Battling the Crypto Wars* (organized by Susan Landau)
- *Symmetry and Hierarchy in Science, Technology, Art, Design, and the Humanities* (organized by Arthur Loeb)
- *Breaking Barriers: Research, Education, and the Web* (organized by Robby Robson)
- *The Mathematics of Politics: Census, Representation, and Voting* (organized by Leon Seitelman)
- *Shaping the Future Learning of Mathematics and Science* (organized by Judith Sowder)
- *Six Degrees of Separation: From Small-World Networks to the Web* (organized by Steven Strogatz)
- Topical Theme Talk: *Phase Transitions in Computer Science*, by Jennifer Tour Chayes

Other Symposia of Interest to Mathematicians and Mathematics Educators

- *Integrating Technology into Science Education*
- *Science as an Error-Correcting Process*
- *College is Too Late: Teaching Mathematics to Children and Adolescents*
- *Scientific Modeling of Complex Scale Relationships: From Astronomy to Manufacturing*
- *The Science of Baseball*

For more information about these symposia and the full list of the 150 or so program offerings at the AAAS meeting, consult the October 29th issue of *Science* or the AAAS web page at http://www.aaas.org/meetings/2000/index.htm, which includes information about AAAS membership and full details about the meeting.

C M L

Contact the MAA Service Center to reserve your complimentary copy of the latest Combined Membership List (CML).

EMAIL: maaservice@pmds.com
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Additional copies are $37.00 each plus shipping and handling.
The 99-00 CML will be distributed later this Fall.
The electronic CML is updated monthly, and is located on MAA Online at www.maa.org.

In Memoriam

Leonard Carlitz

Leonard Carlitz, former James B. Duke Professor of Mathematics at Duke University from 1932 to 1977 and member of the Association since 1950, passed away on September 17 in Pittsburgh, PA. Born in Philadelphia in 1907, Carlitz, who was a regular contributor to the problems section of the *American Mathematical Monthly*, was also a prolific and insightful researcher.

His 770 publications on number theory and related topics appeared in 110 different professional journals. A few quotes from interviews in the 1960's convey his attitudes toward research and creativity. When asked about his general philosophy of research, he responded, "I would say, just do it!" When queried about his remarkable mathematical instincts, he replied, "I just have some experience in these kinds of matters."

He is survived by two sons–Michael, of Palo Alto, California, and Robert, of Pittsburgh, Pennsylvania–and two granddaughters, Natasha and Ruth. Clara, his wife of 59 years, died in 1990. ■

Anneli Lax, Founding Editor of the New Mathematical Library, Dies at 77

Anneli Lax

In 1961, the first volume in the New Mathematical Library, a marvelous new book series, appeared. That book, *Numbers Rational and Irrational*, was written by the distinguished number theorist Ivan Niven and edited by Anneli Lax, the young Professor of Mathematics at New York University. Anneli's considerable editorial skills were first noticed by Richard Courant, her dissertation advisor. According to Anneli, Courant "claimed that he hired me because I seemed more literate than most people." For the next 38 years, she as Editor recruited a highly talented group of outstanding mathematicians as NML authors: W.W. Sawyer, E.Beckenbach, R. Bellman, O. Ore, I.M. Yaglom, K. Friedrichs, W. Chinn, N.E. Steenrod, H.S.M. Coxeter, G. Pólya, and M.M. Schiffer. All 39 of the NMLs published thus far were done under her direction.

In the beginning, she did everything: editing, copyediting, layout, and cover design. Elaine Pedreira, Manager of Production for MAA books, worked closely with Anneli on details of producing many NML volumes, and she recalls that "Anneli was a joy to work with, and a stickler for details."

The NML never was far from her thoughts. Only a few days before her death, she and Don Albers, MAA Director of Publications, were discussing a new translation arrangement for one of the NML volumes. The New Mathematical Library is a library that Anneli built, and it stands as a living memorial to her publishing genius.

Anneli's work had many other dimensions. She was a leader in changing mathematical pedagogy, particularly in coming to understand the relationship of language to mathematics. She also played a major role in developing the program of science education of young children of the New York Academy of Sciences.

In 1995, she won the MAA's top honor: the Distinguished Service Award to Mathematics. ■

Four Mathematicians Elected Fellows of the AAAS

The Council of the American Association for the Advancement of Science recently elected four mathematicians as Fellows of the AAAS. With the other newly-elected fellows, they will be recognized for their contributions to science at the Fellows Forum, to be held during the AAAS annual meeting in February in Washington, DC. The four new mathematical Fellows, are: John C. Baez, University of California, Riverside, Etta Zuber Falconer, Spelman College, Robert M. Fossum, University of Illinois, and Susan Landau, University of Massachusetts, Amherst. ■

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Bentley College
Department of Mathematical Sciences

The Bentley College Mathematical Sciences Department anticipates a full-time tenure track position starting in fall, 2000. Candidates must possess an earned doctorate. Those with backgrounds in Financial Mathematics, Quantitative Methods, Actuarial Science or other applied areas are especially encouraged to apply. Excellence in teaching, as well as strong research potential, is essential. Experience in integrating technology in a mathematical sciences curriculum is also highly desirable. Additional responsibilities include service to the institution and the department.

Interested candidates should send a resume and arrange to have three letters of reference sent to: **Dr. Marilyn B. Durkin, Chair, Department of Mathematical Sciences, Bentley College, 175 Forest Street, Morison Building, Room 361, Waltham, MA 02452-4705, (781) 891-2702; fax: (781) 891-2457; e-mail: mdurkin@bentley.edu**

Visit our website at: www.bnet.bentley.edu

For best consideration, all materials should be received by Bentley as soon as possible.

Interviews will be conducted at the DSI Annual Meeting in New Orleans in November 1999 and at the AMS/MAA Joint Meetings in Washington, D.C. in January 2000. Please inform us if you plan to attend either of these meetings.

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1917 BENTLEY

For other employment opportunities, call our 24-hour Job Hotline at (781) 891-2889.

Bylaws Change to be Voted at January Meeting

by Martha Siegel

The Board of Governors has approved changes in the Bylaws of the Association. Members will be asked to approve those changes at the Business Meeting of the MAA to be held on January 22, 2000 in Washington, DC. The bylaws text with changes indicated appears (below). Underlined text is being proposed to be added or to replace text marked with strikeout.

The primary effect of the recommended changes is to combine the Executive and Finance Committees into a committee to be known as the Executive Committee. The Audit Committee would be elected by the Board, as is our current practice and its two members are members of the Board.

Over the years, the Executive and Finance Committees sometimes have met together and at other times met separately, usually at the discretion of the President of the Association. Many topics are discussed in one of the committees and then the discussion has been repeated in the combined meeting of the two committees. This seemed to be redundant and wasteful since almost every decision is made jointly.

I urge you to read the Bylaws carefully, contact me if you have any questions or suggestions, and please come to the Business meeting in January and vote.

A full copy of the bylaws can be found on MAA Online at www.maa.org/aboutmaa/bylaws.html. ■

Proposed Bylaw Changes

January 22, 2000

Article III_Board of Governors and Officers

2. There shall be a Board of Governors (herein called "the Board") to consist of the officers, the ex-presidents for terms of six years after the expiration of their respective presidential terms, the Associate Secretary, the Editor of each of its three publications entitled *The American Mathematical Monthly, The College Mathematics Journal,* and *Mathematics Magazine*, the members of the Executive Committee (see Article III. 3), and additional elected members (herein called "Governors"). ~~It shall be the function of the Board to supervise all scholarly and scientific activities of the Association, to administer and control these activities, and to authorize expenditures of funds of the Association.~~ It shall be the function of the Board to supervise, administer, and control all programmatic and financial activities of the Association.

3. There shall be an Executive Committee of the Board consisting of the Officers of the Association, the chair of the Committee on Sections (see Article VI.7), the members of the Audit Committee (see Article IX.3), and a current journal editor or the chair of the Committee on Publications. It shall be the function of this Committee to review continually the policies and activities of the Association, to plan and organize new activities, to formulate in broad outline the programs of meetings and of publications, to act on behalf of the Board on all financial matters as specified in Article IX, and in general to consider all matters of importance or interest to the Association. This Committee shall prepare the agenda for meetings of the Board and shall analyze the implications and aspects of all matters which are to come before the Board for decision. It shall present to the Board the viewpoints suggested by such analyses, as well as all such facts as may seem pertinent or as may in any way facilitate the Board's work.

~~5. There shall be a Finance Committee responsible to the Board; at the direction of the Board it shall receive and administer the funds of the Association, control its properties and investments, make its contracts, and exercise such powers as may be delegated to it by the Board. This Committee shall consist of six members including the President, the Secretary, the Treasurer, the President-Elect or the Past-President, and two members-at-large.~~

~~6~~5. The Board shall hold a meeting each year immediately preceding the annual business meeting of the Association. Other meetings of the Board may be held from time to time at the call of the President or of any six (6) members of the Board.

~~7~~6. Notice of all meetings of the Board shall be given by the Secretary to each member of the Board at least fifteen (15) days prior to the date set therefor.

~~8~~ 7. A member of the Board may waive notice with the same effect as if due notice had been given.

~~9~~ 8. The Board may refer a matter to a referendum mail vote of the entire membership and shall make such reference if a referendum is requested, prior to the final action by the Board, by three hundred or more members. The taking of a referendum shall act as a stay upon Board action until the votes have been canvassed, and thereafter no action may be taken by the Board except in accordance with a plurality of the votes cast in the referendum.

Article IV_Elections, Appointments, Terms of Officers and Members of the Board

1. (c) The Board shall elect annually two Governors - at Large for terms of three years and at appropriate times by ballot and for terms stated: an Editor of *The American Mathematical Monthly,* Editor of *The College Mathematics Journal,*

Editor of *Mathematics Magazine*, a Secretary, an Associate Secretary, and a Treasurer each for five years. ~~at-large of the Finance Committee~~. In even-numbered years the Board shall elect one of the current editors or the chair of the Committee on Publications to be a member of the Executive Committee for a two-year term beginning on January 1 of the next year.

(g) Elections by the Board shall be made from nominations by the Executive Committee. At least two nominations shall be made for each office to be filled in the case of the Governors -at-Large ~~(except Sectional Governors)~~ and members of the Audit ~~Finance~~ Committee, except in the case in which the Executive Committee wishes to nominate for re-election a current member of the Audit ~~Finance~~ Committee. In this case only one nomination by the Executive Committee is required. In all Board elections, the Board may make additional nominations.

3. The President shall be the Executive Officer of the Association, shall preside at all meetings of the Board of Governors and at the annual business meeting of the Association, shall be Chairman of the Executive Committee ~~and of the Finance Committee~~; and shall have the usual duties pertaining to the office and such other duties as may from time to time be assigned by the Board of Governors.

4. In the absence of the President, the First Vice-President (or in his or her absence the Second Vice-President) shall have and exercise the powers of the President~~, except that the Past-President shall preside at meetings of the Finance Committee (or in his or her absence the senior member, in terms of service on the Committee, of the two elected members of the Finance Committee)~~. The Board of Governors may assign to the Vice-Presidents such duties as may from time to time be determined.

7. (a) There shall be an Executive Director who shall be a paid employee of the Association. The Executive Director shall have charge of the central office of the Association and shall carry out such other duties as may be assigned to him or her by the Board. The Executive Director shall be responsible to the Board and shall attend meetings of the Board, and the Executive Committee~~, and the Finance Committee~~, except when they meet in executive session, but shall not be ex officio a member of these bodies. The Executive Director shall be especially responsible for implementing and coordinating Section activities.

(b) The Executive Director shall be elected by the Board under terms and conditions of employment fixed by the ~~Finance~~ Executive Committee.

Article VII_Publications

6. The Board shall fix the price of each journal. The prices for other publications of the Association shall be determined by the Executive ~~Finance~~ Committee.

Article IX_Financial Administration

1. The deposit, investment, and disbursement of all funds shall be subject to the direction of the ~~Board~~ Executive Committee. The Executive Director shall be custodian of the current operating funds. The Treasurer shall be responsible for the control and administration of all investment funds; endowment, trust, and gift funds; and such other funds as the Board may designate.

2. All incoming funds shall be received by the Executive Director, entered in the Association's books, and deposited or invested as shall have been prescribed by the Executive ~~Finance~~ Committee. The Executive Director shall keep proper accounts of all financial transactions of the Association. ~~The accounts of the Association shall be audited annually by a certified public accountant.~~

3. The accounts of the Association shall be audited annually by a certified public accountant (the auditor). There shall be an Audit Committee, a subcommittee of the Executive Committee, consisting of two members each elected by the Board in alternate even-numbered years for a term of four years. The Audit Committee shall be responsible for selecting the auditor, receiving the report of the auditor, and making recommendations based on the auditor's report to the Executive Committee.

~~3.~~ 4. ~~The Board shall annually adopt a budget allocating funds of the Association for the purpose of carrying out the objectives of the Association.~~ The Executive Committee shall annually prepare a budget allocating funds of the Association for the purpose of carrying out the objectives of the Association and present this budget to the Board for action.

~~4.~~ 5. The Executive Director, the President, and the Treasurer are empowered and authorized ~~to enter into contracts for the Association that have been approved by the Board or the Executive Finance Committee acting between meetings of the Board, or that are required for the conduct~~ to sign, on behalf of the Executive Committee, contracts that are required for the conduct of the Association's activities specifically provided for in the approved annual budget.

~~5.~~ 6. Checks drawn on the accounts of the Association shall bear the signature of any one of several individuals whom the Executive ~~Finance~~ Committee shall have authorized to sign checks on behalf of the Association.

~~6.~~ 7. The fiscal year of the Association shall be from January 1 through December 31.

~~7.~~ 8. There shall be an Investment Committee, a subcommittee of the Executive ~~Finance~~ Committee. The Investment Committee shall make recommendations to the Executive ~~Finance~~ Committee on the investment of the Association's funds and on financial questions. The securities of the Association may be bought, sold, or exchanged upon the oral orders of members of the Investment Committee who have been given this authority by the Investment Committee. ■

EMPLOYMENT OPPORTUNITIES

ARKANSAS

HENDRIX COLLEGE

Faculty Position in Mathematics

Hendrix College invites applications for a tenure-track position in mathematics at the assistant professor level beginning fall 2000. Applicants must have a Ph.D. in Mathematics by the start date and be committed to excellence in teaching undergraduate mathematics in the context of a liberal arts college. Applicants who may increase the department's strengths in applied mathematics are especially welcome but all areas of interest will be considered. Responsibilities include teaching courses at all levels of the curriculum, directing undergraduate research, and sustaining professional growth.

Applications should include a curriculum vitae, transcripts, three letters of recommendation (at least one addressing teaching effectiveness), and a letter of application addressing the applicant's teaching interests and scholarship goals in a liberal arts environment. Evaluation of applicants will begin on January 3, 2000 and will continue until the position is filled. Mail applications to :

David C. Sutherland, chair
Department of Mathematics &
Computer Science
1600 Washington Avenue
Conway, Arkansas 72032

Hendrix, a private, residential, baccalaureate liberal arts college related to the United Methodist Church, has a coeducational enrollment of 1,100 students. The Department, with five full-time faculty, has a vigorous undergraduate research program and offers a major in mathematics and a combined major in computer science and mathematics. Hendrix is situated in Conway, Arkansas, a city of 40,000 thirty miles from Little Rock at the foothills of the Ozark Mountains. An equal opportunity employer, the College seeks to increase the diversity within its faculty, staff, and student body. Women and members of minority groups are specifically encouraged to apply.

CALIFORNIA

CALIFORNIA STATE UNIVERSITY, FULLERTON

Mathematics Education The Department of Mathematics at California State University, Fullerton, has an opening for one or two tenure track positions at the assistant or associate professor levels, beginning August 21, 2000. Responsibilities include teaching courses in mathematics and mathematics education; developing the teaching skills of student teachers in mathematics; and being active in research related to Mathematics Education. Doctorate in an area directly related to Mathematics Education or Mathematics awarded by the appointment date, and a Master of Arts Degree in Mathematics or a Bachelor of Arts Degree in Mathematics with graduate coursework in Mathematics is required. Rank and salary will be commensurat with experience. The Department has a significant number of faculty who are active in all aspects of teaching and research in Mathematics Education (for the complete ad, please visit us at http://math.fullerton.edu). Send all materials to:

Chair, Search Committee in
Mathematics Education
Department of Mathematics
California State University, Fullerton
Fullerton, CA 92834

Applications will be reviewed beginning November 15, 1999.

CAL STATE POLYTECH. UNIV. POMONA

3 Tenure-Track Positions in Math

App.Math/Stat (Asst Prof). Teach major and service courses in applied math or stat. Pref. to those with multiple specialization in DE, modeling, random processes, OR, data analysis or estimation theory. Expected to direct master's theses and teach graduate classes in applied math or stat. Min qual: Ph.D. in Math, Stat or related area. **Pure/Math Ed** (Asst Prof). Teach major & service courses in pure and secondary math option. Advise students seeking secondary teaching credential. Interact with Center for Education & Equity in Math, Sci. & Tech. and School of Education. Min qual: Ph.D. in pure Math with ability to teach Geometry, Number Theory, Topology and strong background in math ed, or doctorate in Math Ed with ability to teach upper division pure math courses. **Math Ed** (Asst/Assoc. Prof). Teach service courses in math ed, calculus or teacher ed. Advise single & multiple subject credential students. Direct master's theses in mathematics education. Interact with Center for Education & Equity in Math, Sci. & Tech. and School of Education. Ability to supervise student teachers is desirable. Min qual: Doctorate in Mathematics Education with strong background in mathematics, or doctorate in Mathematics with strong background in mathematics education. Pref. to those with exp. in teaching K-12, knowledge of trends in math ed, exp. in use of technology in teaching. Salary and level dependent upon qualifications. Evidence of teaching excellence, potential for conducting scholarly activities. Completion of the terminal degree by September 2000. To apply, please submit: application form (indicate your area of interest), vitae, transcripts, minimum of 3 reference letters to Faculty Search Committee, Mathematics Department CSU Pomona, 3801 W. Temple Ave, Pomona, CA 91768-4007; 909-869-3467; Fax: 909-869-4904; e-mail: ngutierrez@csupomona.edu. Initial review of applications begins January 31, 2000 and will cont. until each position is filled or search is closed. See http://www.csupomona.edu/~math. AA/EEO.

CITY COLLEGE OF SAN FRANCISCO

Mathematics Instructor

(Four Full-Time Positions, Tenure-Track, Based on Availability of Funds) Teach typical community college credit mathematics courses at CCSF. Perform other duties assigned by dept. chair. Salary range from $41,604 to $62,493, based on education and experience. Deadline: 4:00 p.m., Monday, January 31, 2000.

Contact: City College of San Francisco, Human Resources Department at (415) 241-2446 or FAX (415) 241-2335 for job announcement and application or visit our web site at: http://www.ccsf.cc.ca.us/hr

HARVEY MUDD COLLEGE

Department of Mathematics

Assistant Professor of Mathematics

Harvey Mudd College invites applications for a tenure-track assistant professor in applied mathematics or discrete mathematics. Preference will be given to candidates whose research is in applied mathematics (application of mathematics to scientific or industrial problems, numerical methods, asymptotics, applied dynamics) or in discrete mathematics (broadly interpreted to include algebra, algebraic geometry, and combinatorics). Excellence in teaching is absolutely essential, as is evidence of a strong and ongoing research program. Candidates must be willing to supervise undergraduate research, and work with others in the development of departmental programs.

Harvey Mudd College is a highly selective undergraduate institution of science, engineering and mathematics; the average SAT score of entering students is over 1480. More than one-third of the student body are National Merit Finalists, and one year of high school calculus is a requirement for admission. Each year there are over 20 graduates in mathematics, with approximately half going to graduate school. Over 40% of mathematics alumni from HMC have obtained a PhD degree. The college enrolls about 650 students and is a member of the Claremont College consortium, which consists of four other undergraduate colleges and two graduate institutions, forming an academic community of about 5000 students. There is an active and vital research community of over 40 mathematicians in Claremont.

Claremont is situated approximately 35 miles east of downtown Los Angeles, in the foothills of the San Gabriel mountains. The community

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Institute for Advanced Study, Princeton, New Jersey

Organizers of Research Program and Graduate Summer School: Avi Wigderson, Institute for Advanced Study/Hebrew University; Steven Rudich, Carnegie Mellon University.
Graduate Summer School Lecturers: Sanjeev Arora, Princeton University; Paul Beame, University of Washington; Michael Ben-Or, Hebrew University; Oded Goldreich, The Weizmann Institute of Science; Ran Raz, The Weizmann Institute of Science; Steven Rudich, Carnegie Mellon University; Madhu Sudan, MIT; Luca Trevisan, Columbia University; Salil Vadhan, MIT.
Organizers of Other Programs: *High School Teachers:* Susan Addington, California State University at San Bernardino. *Mathematics Education Research:* Timothy Kelly, Hamilton College. *Undergraduate:* Robert Bryant, Duke University. *Undergraduate Faculty:* Daniel Goroff, Harvard University.

Application information: IAS/PCMI, Institute for Advanced Study, Olden Lane, Princeton, NJ, 08540; 1-800-726-4427; pcmi@math.ias.edu; http://www.ias.edu/parkcity.

PCMI is a program of the Institute for Advanced Study, Princeton, NJ, and receives major funding from the National Science Foundation.

Financial support is available.

A Must For All Teaching Assistants!

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Thomas Rishel

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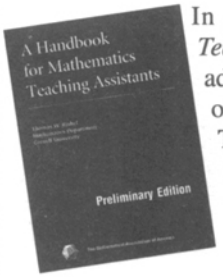

In *A Handbook for Mathematics Teaching Assistants*, Thomas Rishel addresses the "nuts and bolts" issues of teaching college mathematics. This book is written for the mathematics TA or young faculty member who may be wondering just where and how to start. The book answers questions like how to keep a classroom active and lively; how to prepare writing assignments, tests, and quizzes; how exactly to write a letter of recommendation; and how to pace, minute by minute, the "mathematical talks" one will be called upon to give.

Catalog Code: HMT
150 pp., 1999, Paperbound
List: $15.00 MAA Member: $12.00

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is known for its tree-lined streets and village charm. It is an easy drive from Claremont to the cultural attractions of the greater Los Angeles area, as well as the ocean, mountains and deserts of southern California.

Applicants should send a curriculum vitae, a description of their teaching philosophy and experience, a description of their current research program, and arrange to have three letters of recommendation sent to the address that appears below. Further information about the college and department may be found at http://www.hmc.edu. Preference will be given to applications completed by January 10, 2000.

Harvey Mudd College is an equal opportunity employer and is committed to the recruitment of applicants historically underrepresented on college faculties.

Address for applications:
Professor Andrew Bernoff
Chairman, Search Committee
Department of Mathematics
Harvey Mudd College
Claremont, CA 91711-5990

SCRIPPS COLLEGE
Claremont, California 91711
Assistant Professor in Mathematics
Tenure-Track Position, Beginning 2000
Scripps College, a women's liberal arts college with a strong interdisciplinary core program, invites applications for a tenure-track assistant professor position in mathematics to begin in Fall 2000. Ph.D. in mathematics and evidence of excellence in teaching required. Preference will be given to candidates in analysis, although all outstanding candidates will be considered. We are looking for an individual with a strong commitment to undergraduate liberal arts education. Successful teaching experience and evidence of a productive research program are essential. Applicants should send a c.v. and a statement of teaching interests and philosophy to Chair, Mathematics Search Committee, Scripps College, 1030 Columbia Avenue, Claremont, CA 91711. In addition, applicants should arrange for three letters of recommendation to be sent, at least one of which addresses the applicant's teaching ability. Applications will be reviewed beginning January 5, 2000 and will continue until position is filled. Scripps College, one of six members of the Claremont Colleges cluster located 35 miles east of Los Angeles, is an equal opportunity employer which invites and encourages applications from minority persons and from women.

CONNECTICUT

SOUTHERN CONNECTICUT STATE UNIVERSITY
Mathematics Department
Tenure track position in applied mathematics at the Assistant Professor rank beginning 8/28/2000 to teach undergraduate/graduate courses in mathematics and participate in department/university activities. Teaching load: 12 hours/sem. Salary range: $40,866 to $56,003. Qualifications: doctorate in mathematics with a specialty in applied mathematics, evidence of quality teaching, potential for scholarly growth. Preference will be given to applicants with an interest in mathematical modeling and in developing student/faculty relationships with business and industry. Send letter of application, vita, graduate and undergraduate transcripts (unofficial OK), statement of teaching philosophy, three letters of reference, one of which should address teaching, to Dr. Theresa Sandifer, Coordinator: Applied Mathematics Search, Mathematics Department, Southern Connecticut State University, 501 Crescent St., New Haven, CT 06515. Full consideration given to applications received by 12/31/99. For further information, visit our website at http://scsu.ctstateu.edu/~mathdept/. SCSU is an AA/EOE. Minorities and women are encouraged to apply.

SOUTHERN CONNECTICUT STATE UNIVERSITY
Mathematics Department
Tenure track position in algebra at the Assistant Professor rank beginning 8/28/2000 to teach undergraduate/graduate courses in mathematics and participate in department/university activities. Teaching load: 12 hours/sem. Salary range: $40,866 to $56,003. Qualifications: doctorate in mathematics with a specialty in algebra, evidence of quality teaching, potential for scholarly growth. Send letter of application, vita, graduate and undergraduate transcripts (unofficial OK), statement of teaching philosophy, three letters of reference, one of which should address teaching, to Dr. Michael Meck, Coordinator: Algebra Search, Mathematics Department, Southern Connecticut State University, 501 Crescent St., New Haven, CT 06515. Full consideration given to applications received by 12/31/99. For further information, visit our website at http://scsu.ctstateu.edu/~mathdept/. SCSU is an AA/EOE. Minorities and women are encouraged to apply.

SOUTHERN CONNECTICUT STATE UNIVERSITY
Mathematics Department
Tenure track position in mathematics education at the Assistant Professor rank beginning 8/28/2000. Duties include teaching undergraduate/graduate courses in mathematics education and mathematics for secondary and elementary preservice teachers, supervising student teaching of preservice secondary mathematics teachers, and participating in department/university activities. Teaching/supervision load: 12 hours/sem. Salary range: $40,866 to $56,003. Qualifications: doctorate in mathematics education with a strong mathematics background or doctorate with substantially equivalent credentials, evidence of quality teaching, potential for scholarly growth. Secondary school teaching experience preferred. Send letter of application, vita, graduate and undergraduate transcripts (unofficial OK), statement of teaching philosophy, three letters of reference, one of which should address teaching, to Dr. Martin Hartog, Coordinator: Mathematics Education Search, Mathematics Department, Southern Connecticut State University, 501 Crescent St., New Haven, CT 06515. Full consideration given to applications received by 12/31/99. For further information, visit our website at http://scsu.ctstateu.edu/~mathdept/. SCSU is an AA/EOE. Minorities and women are encouraged to apply.

FLORIDA

EMBRY-RIDDLE AERONAUTICAL UNIVERSITY
The Department of Computing and Mathematics of Embry-Riddle Aeronautical University's Daytona Beach Campus is seeking candidates for several Tenure and Non-Tenure Track Faculty positions.

Computer Science: A Ph.D. in computer science, or an MS in computer science and a Ph.D. in a closely related field. Should be able to teach a broad range of courses in the computer science undergraduate curriculum. The department also seeks individuals who are qualified to teach in the graduate Master of Software Engineering program; preference will be given to candidates experienced in the software development process or real-time safety critical environment. An interest in and a potential for developing research is expected.

Computer Engineering: A Ph.D. in computer engineering or computer science with a definite interest in embedded systems design; computer interfacing; and software/hardware co-design. An interest in and a potential for developing research is expected.

Mathematics: A Ph.D. in mathematics and the ability to teach a broad range of courses in the undergraduate area. An interest in and a potential for developing research is expected.

Either send or email or fax applications or nominations, along with curriculum vitae, a statement of professional accomplishments and vision for the future of aerospace engineering education, plus a list of three references with phone numbers and e-mail addresses to:
Dr. Charles Martin Chair, Search Committee
Department of Computing and Mathematics
c/o Stacey Wilkins
Embry-Riddle Aeronautical University
600 South Clyde Morris Blvd. Daytona Beach, FL 32114-3900
or E-mail to: wilkinss@cts.db.erau.edu or Fax to: 904-226-6678.

Embry-Riddle Aeronautical University is an equal opportunity/affirmative action employer. Women and minorities are encouraged to apply.

STETSON UNIVERSITY

Stetson University invites applications for a tenure-track position beginning August, 2000. A Ph.D. in mathematics is required. Rank and salary will be commensurate with experience. The duties include teaching a broad range of undergraduate courses to both majors and non-majors, maintaining a program of scholarly activity, and undertaking university service. The teaching load is three courses per semester. Salary is competitive.

The successful candidate will exhibit an enthusiasm and talent for teaching, support department standards for student performance, and contribute to the intellectual life of the department. Because all students in the College of Arts and Sciences must undertake a senior project, candidates should be committed to fostering undergraduate research. An interest in interdisciplinary work or applied mathematics is a strong plus.

Stetson, Florida's first private university, is a small selective university of 2000 students. We are located in DeLand, Florida, 40 miles from Orlando and 20 miles from Daytona Beach. The department consists of seven mathematicians and four computer scientists, and has a variety of computing resources available, including computer-equipped teaching laboratories. Further information about our department is on our web page: http://www.stetson.edu/departments/mathcs/.

Please send the following to the address below: letter of application, curriculum vitae, AMS cover sheet, a statement of mathematicl interests, and a statement of teaching philosophy as it pertains to a liberal arts curriculum. Also arrange for three letters of reference, at least one of which addresses teaching.

Search Committee
Department of Mathematics and
Computer Science
Stetson University
DeLand, Florida 32720

Stetson University, an equal opportunity employer, affirms the values and goals of diversity and strongly encourages applications from women and candidates from groups historically underrepresented in higher education.

UNIVERSITY OF SOUTH FLORIDA
Department of Mathematics

The Department has three non-tenure-earning nine-month (teaching) Instructorship positions available. These positions are annually renewable, indefinitely. Salary is negotiable. Minimum qualifications include Ph.D. (or equivalent) and documented interest and ability in undergraduate teaching. Applicants with three years teaching experience in an American or Canadian educational institution are preferred. More details of this position are available on our website: http://www.math.usf.edu/. By February 15, 2000, send application materials and have three letters of reference sent to:

Search Committee
Department of Mathematics
University of South Florida
4202 East Fowler Avenue, PHY 114
Tampa, FL 33620-5700

The University of South Florida is an affirmative action, equal opportunity, equal access employer. Applications from women and minorities are encouraged. According to Florida law, applications and meetings regarding them are open to the public. For disability accommodations, please contact the department at (813) 974-2643 at least five days in advance.

GEORGIA

GEORGIA COLLEGE & STATE UNIVERSITY

The Department of Mathematics and Computer Science invites applications for two tenure-track positions in mathematics. A Ph.D. in Mathematics, Statistics or a closely related discipline is required, as well as a commitment to teaching and scholarship at a public liberal arts university. All specialties are welcome, with special consideration given to candidates who can help develop the department's new actuarial science minor. Effective teaching, scholarship and university/community service are requirements for promotion and tenure.

Please send a letter of application, CV, unofficial graduate transcripts, and three letters of recommendation to:

Search Chair
Department of Mathematics
and Computer Science
CBX 017
Georgia College & State University
Milledgeville, GA 31061

The cover letter should address career goals and views on teaching and scholarship in a liberal arts university. [Final candidates for the position will need to submit official graduate and undergraduate transcripts.] Please indicate availability for interviews at the January meeting of the AMS/MAA.

For complete information on the Department and the positions, please see the Department's web page: http://www.gcsu.edu/acad_affairs/coll_artsci/mathcomp_sci.

GC&SU is an Equal Opportunity/Affirmative Action Employer.

ILLINOIS

SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE

Department of Mathematics and Statistics

Southern Illinois University Edwardsville, a comprehensive state university located 20 miles from downtown St. Louis, Missouri, invites applications for two tenure-track positions in mathematics at the rank of assistant professor, beginning August 2000. Higher ranks may be considered for outstanding candidates. Applicants should have a Ph.D. or Ed.D. in various areas of mathematics or mathematical education. We seek applicants with a strong commitment to teaching and a demonstrated capacity to perform research in at least one area. The successful candidates will teach precalculus, calculus, differential equations, and some upper level courses in mathematics, applied mathematics, and numerical analysis. Some mathematics courses may require use of computer labs. One applicant will be expected to work with teacher education by sharing responsibility for methods courses, advisement, and supervision of student teachers. Participation in Office of Science and Mathematics Education activities, including outreach to K-12 sector, is expected. The Department of Mathematics and Statistics has 17 full time faculty members. It offers undergraduate programs in mathematics, applied mathematics, statistics, actuarial science, and secondary education, and master's programs in mathematics, statistics and operations research, and computational mathematics. Send a letter of application, curriculum vita, transcripts (unofficial transcripts are acceptable for now), and three letters of recommendation to: Chair of Search Committee, Department of Mathematics and Statistics, Campus Box 1653M, Southern Illinois University Edwardsville, Edwardsville, IL 62026-1653. As an affirmative action employer, SIUE offers equal opportunity without regard to race, color, creed or religion, age, sex, national origin, or handicap. Applications from women and minorities are especially encouraged. Review of applications will begin on December 15, 1999 and continue until the position is filled.

INDIANA

INDIANA UNIVERSITY SOUTH BEND
Department of Mathematics and Computer Science
Visiting Assistant Professor of Mathematics

The Department of Mathematics and Computer Science invites applications for a two-year visiting position in mathematics at the assistant professor level starting August 2000. Applicants must have completed all requirements for a doctoral degree in Mathematics, Mathematics Education, or a closely related field by August 2000.

The responsibilities of this position include: Teaching up to 12 hours per semester and service to the department. Salaries and benefits are competitive. The Department currently has 17 full-time faculty and about 35 associate faculty.

IUSB is an Equal Opportunity/Affirmative Action employer; women and minority candidates are encouraged to apply. Send a curriculum vitae, a statement on teaching, and arrange for three letters of recommendation, at least two of which should address teaching, to Mathematics Hiring Committee, Department of Mathematics and Computer Science, Indiana University South Bend, South Bend, IN 46634. Completed applications received by February 18, 2000 will be given full consideration. Visit us at http://www.iusb.edu/~mcsi/.

KENTUCKY

MOREHEAD STATE UNIVERSITY

Morehead State University invites applications for a tenure track position as Assistant Professor of Mathematics (Mathematics Education) beginning August 2000. Responsibilities: Teach mathematics education courses as well as other undergraduate courses in mathematics; provide service; advise students; and participate in scholarly productivity and curriculum development. Qualifications: Ph.D./Ed.D. in mathematics education with a Masters in mathematics (or the equivalent) or Ph.D. in mathematics or related field supported by experience with K-12 education. ABDs with imminent completion will be considered. Excellent communication skills. Preferred Qualifications: Commitment to: 1) an active learning environment, 2) effective use of technology in the classroom, 3) teacher preparation, 4) working with public school educators, and 5) active involvement in professional organizations. Candidates desiring to model teaching according to the NCTM Standards are encouraged to apply. To ensure consideration, submit letter of application, curriculum vitae, statement of teaching philosophy, and three letters of recommendation to: Office of Human Resources, Attn: Math.Ed. #339, Morehead State University, HM 101, Morehead, KY 40351. Review of applications will begin January 4, 2000, and will continue until filled. MSU is an EO/AA employer.

MASSACHUSETTS

WILLIAMS COLLEGE
Department of Mathematics
Williamstown, Massachusetts 01267

Tentative full-time visiting position in mathematics for the 2000-2001 year, probably at the rank of assistant professor; in exceptional cases, however, more advanced appointments may be considered. Excellence in teaching and research, and Ph.D. required. Please have a vita and three letters of recommendation on teaching and research sent to Visitor Hiring Committee. Evaluation of applications will begin on or after January 15 and continue until the position is filled. As an EEO/AA employer, Williams especially welcomes applications from women and minority candidates

MINNESOTA

UNIVERSITY OF MINNESOTA-DULUTH

Tenure-track asst professor in mathematics education starting 8/28/00. Teach two courses per semester at graduate and undergraduate level; direct student research; conduct active research program; perform usual service responsibilities. Doctorate in mathematics education and undergraduate or master's degree in the mathematical sciences required by 8/28/00. Competitive salary. For more information, contact Dr. Robert McFarland, Search Committee Chair, Dept of Math & Stat, University of Minnesota-Duluth, Duluth, MN 55812. Review of completed applications starts 1/24/00 and continues until position is filled. Full position description and application procedures at http://www.d.umn.edu/math or e-mail address math@d.umn.edu. The University of Minnesota is an equal opportunity educator and employer.

MISSOURI

DRURY COLLEGE

Department of Mathematics and Computer Science Two tenure-track Assistant Professor positions begin August 2000, one in statistics and one in computer science. Ph.D. in statistics, computer science or related field is required. Submit vita, statement of teaching philosophy and three letters of recommendation by January 3, 2000, to Search Committee, Dr. Carol Collins, Chair, Department of Math and Computer Science, Drury College, 900 North Benton Ave., Springfield, MO 65802. Drury College is an EO/AA employer.

MISSOURI WESTERN STATE COLLEGE

Tenure-track, assistant professor fall 2000. Mathematics doctorate. Classroom technology & strong communication skills. Teaching 12 undergraduate hours/ semester. Institutional service & professional development is expected. Deadline: 2-1-00. Application letter, vita (including e-mail address), statement of teaching philosophy & technology in classroom, college transcript copies, 3 confidential reference letters to Ken Lee, Search Chair, CSMP Dept., Missouri Western State College, 4525 Downs Drive, St.Joseph, MO64507. EEO. http://www.mwsc.edu/~csmp/.

MONTANA

CARROLL COLLEGE
Mathematics

We invite applications for a tenure-track, faculty position in the Department of Mathematics, Engineering, and Computer Science. A Ph.D. in mathematics with an applied focus or a Ph.D. in operations research is required. Applicants must be proficient in using mathematical software. Experience in other disciplines and teaching experience will be considered favorably. Salary and rank DOQ.

Carroll College is a Catholic, undergraduate, liberal arts school of 1,200 students, located in Helena MT on the eastern slopes of the Rocky Mountains. Review of applications will begin January 5, 2000. Send and/or email letter of application, transcripts, curriculum vitae, statement of teaching philosophy, response to mission statement, names, addresses and telephone numbers of at least three professional references to Ms. Renee Hill (rhill@carroll.edu), Office of Human Resources, Carroll College, Helena MT 59625. Mission statement and information about the Department is available at www.carroll.edu. Representatives will be available for interviews at the Joint Mathematics Meetings Employment Center in Washington, D. C., January 19-22. EOE.

NEBRASKA

CREIGHTON UNIVERSITY

Creighton University invites applications for a tenure-track entry-level faculty position in the Mathematics and Computer Science Department beginning Fall 2000. Creighton University is a Jesuit, Catholic institution that encourages applications from qualified individuals of all backgrounds who believe they can contribute to its distinctive educational traditions. Applicant qualifications required include: a Ph. D. in mathematics, strong teaching and research potential and an interest in curriculum development. Applicants must submit a current curriculum vitae, three letters of recommendation independent of the candidate, original transcripts of all college level work, evidence of successful teaching, and a summary of research accomplishments and interests. Send letter of application and the above material to: Randall Crist, Search Committee Chair, Department of Mathematics and Computer Science, Creighton University, Omaha, Nebraska 68178-2090. The review of completed applications will begin January 1, 2000 and continue until a suitable candidate is selected. Creighton University is an Affirmative Action/Equal Opportunity employer and seeks a wide range of applications for this position, so that one of our core values-ethic and cultural diversity-may be realized.

NEW HAMPSHIRE

DARTMOUTH COLLEGE
John Wesley Young Research Instructorship in Mathematics

The John Wesley Young Research Instructorship is a two-year post-doctoral appointment for

promising new or recent PhD's whose research interests overlap a department member's. Current departmental interests include areas in algebra, analysis, combinatorics, differential geometry, logic and set theory, number theory, probability and topology. Teaching duties of four ten-week courses spread over two or three quarters typically include at least one course in the instructor's specialty and include elementary, advanced and (at instructor's option) graduate courses. Nine-month salary of $41,000 supplemented by summer research stipend of $9,111 for instructors in residence for two months in summer. Send letter of application, resume, graduate transcript, thesis abstract, description of other research activities and interests if appropriate, and 3 or preferably 4 letters of recommendation (at least one should discuss teaching) to Betty Harrington, Department of Mathematics, 6188 Bradley Hall, Hanover, NH, 03755-3551. Applications received by Jan. 15 receive first consideration; applications will be accepted until position is filled. Dartmouth College is committed to affirmative action and strongly encourages applications from minorities and women.

DARTMOUTH COLLEGE

The Department of Mathematics anticipates two tenure-track openings with initial appointment in the 2000-2001 academic year. The first is for an Assistant Professor of Mathematics in the field of geometry. The second is for an Assistant Professor in applied mathematics. Current areas of applied interests include signal and image processing, informatics, and computational methods. The applied mathematics group enjoys close ties with computer science, cognitive neuroscience, engineering, and the medical school. Of particular interest are candidates who will be able to enhance some of these connections.

Candidates for either position must be committed to outstanding teaching at all levels of the undergraduate and graduate curriculum and must give evidence of a well-regarded research program that shows real promise for the future. Candidates with several years of experience should in addition be ready to direct Ph.D. theses. The applied mathematics candidate should be someone who can and wants to help cover the undergraduate probability and statistics offerings of the department.

To create an atmosphere supportive of research, Dartmouth offers new faculty members grants for research-related expenses, a quarter of sabbatical leave for each three academic years in residence and flexible scheduling of teaching responsibilities. The teaching responsibility in mathematics is four courses spread over two or three quarters. The department encourages good teaching with a combination of committed colleagues and bright, responsive students.

To apply, send a letter of application, curriculum vitae, and a brief statement of research results and interests. Also arrange for four letters of reference to be sent, at least one of which addresses teaching, and, if the applicant's native language is not English, the applicant's ability to use English in a classroom. All application materials should be addressed to Betty Harrington, Recruiting Secretary, Department of Mathematics, Dartmouth College, 6188 Bradley Hall, Hanover, NH 03755-3551. Applications completed by January 15 will receive first consideration. Dartmouth is committed to Affirmative Action and encourages applications from African Americans, Asian Americans, Hispanics, Native Americans and women. Inquiries about the progress of the selection process can be directed to Dwight Lahr, Recruiting Chair.

NEW JERSEY

THE COLLEGE OF NEW JERSEY
Department of Mathematics and Statistics

Applications are invited for two anticipated tenure track positions starting September 2000. The positions require a doctorate, demonstrated record of teaching effectiveness, and strong indications of research potential. Responsibilities include undergraduate teaching, advising, and committee service. Preference given to candidates with postdoctoral experience in teaching and research. Position preferences will be given in one case to statistics/applied math and the other to mathematics education. Send vita and three letters of recommendation, addressing teaching and research to: Search Committee, Department of Mathematics and Statistics, THE COLLEGE OF NEW JERSEY, P.O. Box 7718, Ewing, NJ 08628-0718. Application deadline: February 1, 2000. To enrich education through diversity, TCNJ is an AA/EOE.

RICHARD STOCKTON COLLEGE OF NEW JERSEY

QUANTITATIVE REASONING ACROSS THE DISCIPLINES, Asst. Prof. of Developmental Mathematics, Tenure Track, Fall 2000. To join the core faculty guiding an innovative, college-wide program. Qualifications required: Ph.D. in relevant area, evidence of experience with innovative math teaching at various levels, including basic skills, and experience in an interdisciplinary academic environment. Teaching load is 12 credit hours per semester. Additional duties as expected under collective bargaining agreement, including an expectation of ongoing scholarly activity. All faculty are expected to teach general studies courses. Salary: $37,477-$43,100, may be higher depending upon qualifications, experience and increases in the appropriately established compensation plan. Screening begins November 19, 1999 and will continue until position is filled. Send letter of application, resume and three reference letters to Dr. G. Jan Colijn, Dean of General Studies, Richard Stockton College of New Jersey, AA87, PO Box 195, Pomona, NJ 08240-0195. Stockton is an AA/EOE. Women and minorities are encouraged to apply. R001798

NEW YORK

ALFRED UNIVERSITY
Mathematics

Applications are invited for two anticipated tenure-track positions at the assistant professor level in mathematics beginning August 2000. We seek Ph.D. mathematicians who are committed to excellent teaching of undergraduates, will maintain active scholarship and are willing to contribute to divisional and university activities. The area of expertise is open, but a willingness to teach a variety of undergraduate mathematics courses is essential.

Send letter of interest, curriculum vitae, graduate transcripts and three letters of recommendation (at least one of which directly addresses teaching) to:

Dr. Addison Frey
Division of Mathematics and Computer Science
Alfred University
Saxon Drive
Alfred University
Alfred, NY 14802
(E-mail: ffrey@king.alfred.edu)

We particularly encourage women and minority applicants. Alfred University is an Equal Opportunity employer.

Review of applications will begin January 24, 2000 and will continue until the position is filled.

SUNY COLLEGE AT CORTLAND

The Mathematics Department invites applications for a tenure-track position as Coordinator, Secondary Mathematics Education at the assistant or associate professor level to begin Fall 2000. Responsibilities include overseeing the department's bachelor's and master's degree programs in secondary education, supervising student teachers, and teaching a broad spectrum of courses. Requirements include a Ph.D. in mathematics or mathematics education, excellent teaching skills, and experience in teacher preparation. Send vita, unofficial transcripts, statement of teaching and learning philosophy, and three letters of reference to:

Mathematics Search Committee
SUNY College at Cortland
P.O. Box 2000
Cortland, NY 13045

Deadline for applications is January 7, 2000 or until the position is filled. We plan to conduct interviews at the Joint Mathematics Meetings in Washington, DC. SUNY Cortland is an AA/EEO/ADA employer. We have a strong commitment to the affirmation of diversity and have

interdisciplinary degree programs in the areas of multicultural studies.

SUNY FREDONIA
Department of Mathematics and Computer Science
Applications are invited for a tenure-track position in mathematics at the rank of assistant professor. Either a Ph.D. in mathematics or a Ph.D./Ed.D. in mathematics education with an MS/MA in mathematics is required. Applicants from all specialty areas are welcome, with special consideration given to those with interest/expertise in algebra or secondary teacher preparation. The successful candidate will show evidence of excellence in teaching and potential for scholarly growth. A complete application will include exactly: a cover letter, curriculum vita; statement of teaching philosophy; research plan; transcripts of graduate work; and three letters of recommendation (at least one of which addresses the candidate's teaching ability). Send to Robert Rogers, Chair, Mathematics Search Committee, Department of Mathematics and Computer Science, SUNY Fredonia, Fredonia, NY 14063. Review of applications will begin November 15. Inquiries can be made to rogers@cs.fredonia.edu. For further information about the college, visit the website at www.fredonia.edu. SUNY Fredonia is an Equal Opportunity/Affirmative Action employer and encourages women, minorities, and persons with disabilities to apply.

NORTH CAROLINA

APPALACHIAN STATE UNIVERSITY
Applications are invited for one or more tenure track positions in mathematics education at the assistant professor level in the Department of Mathematical Sciences beginning August 2000. A doctorate in mathematics education is required. Persons with experience in K-12 teaching and with expertise in educational uses of technology will be given preference. Teaching is primary; scholarship is expected and supported.

Appalachian State University, a member of The University of North Carolina System, has approximately 12,500 students. It is located in the Blue Ridge Mountains of northwestern North Carolina. The department includes mathematics (BS, MS), mathematics education (BS, MS), and statistics (BS).

To apply, send a letter of application, resume, copy of graduate transcripts, and have three letters of recommendation forwarded by January 28 to: Dr. Wm.C. Bauldry, Search Committee ME, Department of Mathematical Sciences, Appalachian State University, Boone, NC 28608; phone 828-262-3050, e-mail bauldrywc@appstate.edu. Appalachian State University is an equal opportunity employer and actively encourages applications from women and minorities.

UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE
Applications are invited for a tenure-track Assistant Professor in Mathematics Education beginning August 2000. Minimum requirements are a Ph.D. or Ed.D. in Mathematics Education with the equivalent of a master's degree in mathematics and potential for high quality research and teaching. Some pre-college teaching experience is desirable. Send a letter of application, vitae, short statement of your teaching and research objectives, and at least three letters of recommendation to Professor Alex Papadopoulos, Department of Mathematics, University of North Carolina at Charlotte, NC, 28223. The letters of recommendation should be addressed and mailed directly to Professor Papadopoulos. Review of applications will begin December 1 and continue until the position is filled.
AA/EOE.

NORTH DAKOTA

JAMESTOWN COLLEGE
Department of Mathematics invites applications for a full-time position as Chair to start August, 2000. Ph.D. required. Rank open, contingent upon qualifications and experience. Teaching responsibilities include the ability to teach all undergraduate courses in mathematics, including first courses in both algebra-and calculus-based Physics, and advising students. Additional responsibilities of the Chair include the submission and administration of annual budgets and departmental course schedules in consultation with departmental colleagues. Successful candidates will have a strong commitment to undergraduate teaching and a demonstrated potential for excellence in teaching. Jamestown College is a small (1100 students), Presbyterian-affiliated, four-year undergraduate liberal arts college seeking a person with a commitment to its nonsectarian Christian mission. Jamestown is located on Interstate-94 midway between Fargo and Bismarck. Please send detailed vita with names and addresses (phone numbers and e-mail addresses, if available) of three references who are familiar with candidate's professional work and teaching potential to: Dr. Jim Stone, Academic Dean, 6076 College Lane, Jamestown, ND 58405. Women and minorities are strongly encouraged to apply. Jamestown College is an Equal Opportunity/Affirmative Action employee.

OHIO

SHAWNEE STATE UNIVERSITY
Faculty Position
Department of Mathematical Sciences
Shawnee State University, an open-admission undergraduate state institution which enrolls 3500 students, is accepting applications for one or more (pending funding) continuing contract eligible (tenure track) faculty positions in the Department of Mathematical Sciences. Rank will be commensurate with experience.

Faculty generally teaches twelve hours a week during each of three academic quarters. Teaching loads often consist of courses at or below the level of calculus. Teaching effectiveness is of primary importance in faculty evaluation. Scholarship and/or service are expected and encouraged.

Qualifications: A doctorate in the mathematical sciences or math education with the equivalent of a strong master's degree in mathematics. The successful candidate(s) will demonstrate a strong commitment to the various roles played by mathematics in undergraduate education, including developmental mathematics, service courses, general/liberal education courses focusing on quantitative literacy, and courses which primarily serve mathematical sciences majors.

Candidates for the position(s) will be evaluated on the extent to which their application packets demonstrate successful experience in, or potential for:
Effective teaching in math courses focusing on general/liberal education; Effective teaching of precalculus and calculus; Effective teaching of developmental math courses; Effective teaching upper division mathematics courses and supervising undergraduate senior projects; Significant contributions in service and/or scholarship.

We're seeking faculty who are committed to use of a variety of approaches to teaching and learning, including appropriate use of technology, use of applications to motivate mathematical ideas, collaborative learning, and development of students' abilities to communicate mathematical ideas.

A complete application file will include a letter of application, a vita, copies of graduate and undergraduate transcripts (unofficial or official), and three letters of reference. Applications, which are submitted electronically or faxed, will not be considered. Applications received by January 7, 2000 are assured of receiving full consideration. Candidates should clearly and specifically address how their qualifications satisfy the requirements for the position and are encouraged to submit supporting information with their applications. Applicants should indicate on their letters of application whether or not they plan to attend this year's joint AMS-MAA meeting in Washington, D.C. Submit application materials to:
Dr. Jerry Holt
Dean, College of Arts and Sciences
Shawnee State University
940 Second Street
Portsmouth, OH 45662-4344

Information about the University is available on our homepage at http://www.shawnee.edu

SSU seeks staff who share our commitment to

students as our first priority. SSU is an affirmative action/equal opportunity employer.

UNIVERSITY OF DAYTON
Department of Mathematics

Applications are invited for two tenure track positions at the assistant professor level starting in August 2000. One position requires a Ph.D. in mathematics, with preference given to candidates working in the area of combinatorics. The other requires a Ph.D. in statistics. Applicants must have a strong commitment to research and the potential to become an effective teacher. Responsibilities include developing and maintaining a research agenda, teaching a broad range of mathematics and/or statistics courses, advising, and curriculum development. The applicant will also be expected to participate in mentoring students working on research projects.

The selection process for both positions will begin on December 6, 1999. To receive full consideration, all materials must be received by January 22, 2000. Please send a resume, three letters of recommendation, a statement of research plans and a statement of teaching philosophy to the appropriate search committee: Dr. Paul Eloe, Chair of the Combinatorics Search Committee, or Prof. Gerald Shaughnessy, Chair of the Statistics Search Committee, Department of Mathematics, University of Dayton, Dayton, OH 45469-2316. Both teaching and research abilities should be addressed in the letters. Please include an e-mail address in your correspondence. Further information can be obtained on our web site: http://www.udayton.edu/~mathdept. The University of Dayton is an Equal Opportunity and Affirmative Action Employer.

XAVIER UNIVERSITY
Assistant Professor of Mathematics

Xavier University, a Catholic university in the Jesuit tradition, invites applications for a tenure-track position in mathematics at the assistant professor level starting in August 2000. Applicants should have completed a Ph.D. by August 2000. Candidates must be committed to outstanding teaching at the undergraduate level, to scholarly activity, and to service consistent with the mission of Jesuit higher education. Preference will be given to applicants who can teach a broad range of courses in an undergraduate mathematics curriculum. A successful candidate will be expected to use technology in the teaching of mathematics. We encourage applications from women and minorities.

Interested applicants should **send a letter of application, statements of teaching philosophy and research aspirations, a resume, a copy of graduate transcripts, and three letters of recommendation no later than December 31, 1999** to:

Dr. J.T. Snodgrass III, Chair
Department of Mathematics and Computer Science
Xavier University
3800 Victory Parkway
Cincinnati, OH 45207-4441

EO/AAE

OREGON

UNIVERSITY OF PORTLAND

The Department of Mathematics at the University of Portland has an opening for a tenure track assistant professor. The primary teaching duties will be the mathematics instruction of prospective K-8 teachers.

Requirements are a Ph.D. in math with training or experience in K-12 math ed, or, Ph.D. in math ed with a master's degree (or equivalent) in math.

Applicants should send:
- a resume & letter of application
- transcripts of all graduate & undergraduate work
- three letters of recommendation, at least one of which should discuss the applicant's potential and/or experience as a teacher
- a short (1-2 page) essay of the applicant's views on one issue in K-12 mathematics education

Send these materials to:
John Kurtzke, C.S.C., Chair
Department of Mathematics
University of Portland
5000 N. Willamette Blvd.
Portland OR 97203

Deadline: January 31, 2000, or until the position is filled. We will participate in the Employment Register at the AMS-MAA Meetings in Washington.

PENNSYLVANIA

BLOOMSBURG UNIVERSITY

The Mathematics, Computer Science and Statistics Department invites applications for a tenure-track faculty position in computer science beginning by fall 2000. All areas of concentration will be considered. A Ph.D. in computer science is preferred. We will consider candidates with a Ph.D. in mathematics or related disciplines and extensive computer science experience. The appointment will be made at the rank of assistant or associate professor.

Duties include undergraduate teaching and curriculum development in computer science, scholarly activities, and service to the university and community. The normal teaching load is 12 contact hours per week with reassigned time competitively available. Demonstrated ability to work with diverse populations preferred. Finalists for this position must communicate well and successfully complete an interview and teaching demonstration. Candidates should send a letter of application, a vita, three letters of reference, and copies of undergraduate and graduate transcripts to: Dr. Curt Jones, Chair Computer Science Search and Screen Committee AA#53-9-18, Department of Mathematics, Computer Science, & Statistics, Bloomsburg University, Bloomsburg, PA 17815. Complete applications will be reviewed starting January 15, 2000. Applications will be accepted until the position is filled. Please visit our web site at http://departments.bloomu.edu/ComputerScience for additional information about our department, the University and this position. AA/EOE

TENNESSEE

THE UNIVERSITY OF TENNESSEE, KNOXVILLE
Position Announcement

Subject to university approval, the Mathematics Department of the University of Tennessee seeks to fill a tenure-track assistant professorship in algebraic geometry or geometric group theory. A Ph.D. is required. Some postdoctoral experience is preferred but not required. Substantial research promise as well as dedication to teaching are paramount. Employment begins August 1, 2000.

Interested applicants should arrange to have a vita, three reference letters, a research statement (including abstracts), and evidence of quality teaching sent to Professor John B. Conway, Geometry Search, Mathematics Department, University of Tennessee, Knoxville, TN 37996-1300. Electronic applications are not acceptable. Use of the AMS application form is appreciated. Review of applications will begin December 1 and will continue until the position is filled. Information about the department can be found at http://www.math.utk.edu/.

UTK Knoxville is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.

THE UNIVERSITY OF TENNESSEE, KNOXVILLE
Position Announcement

Subject to university approval, the Mathematics Department of The University of Tennessee (http://www.math.utk.edu) seeks to fill a tenure-track position with an Outreach Mathematician (OM). The duties of the OM will be to foster close relations between the University and the community colleges and/or high schools across the state, collaborate with faculty in the College of Education, as well as teach in the department. The appointment will be at a rank that is commensurate with experience.

A Ph.D. in Mathematics or a doctoral degree in another discipline with a Masters of Science degree in Mathematics is required together with a clear commitment to outreach activities. Some postdoctoral experience is preferred, but not required. Dedication to teaching is paramount. Employment begins August 1, 2000.

We seek a person who will participate in the education program of the department, actively pursue grants to foster these aims, carry out sys-

tematic school visits, become involved in statewide mathematics education reform, and work with the appropriate faculty in the College of Education.

Interested applicants should arrange to have a vita, three reference letters, a statement of accomplishments, qualifications, plans for outreach activities, and evidence of quality teaching sent to Professor John B. Conway, OM Search, Mathematics Department, University of Tennessee, Knoxville, TN 37996-1300. Electronic applications are not acceptable. Use of the recent AMS application form is encouraged. Review of applications will begin December 1 and will continue until the position is filled.

UTK Knoxville is an EEO/AA/Title VI/Title IX/ Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.

THE UNIVERSITY OF TENNESSEE, KNOXVILLE
Position Announcement
Subject to university approval, the Mathematics Department of the University of Tennessee seeks to fill a tenure-track assistant professorship in probability and stochastic processes with emphasis on stochastic analysis, stochastic differential equations, or non-deterministic modeling. Preference will be shown to candidates working in applied aspects of these areas such as communication networks, mathematical biology and genetics, and mathematical finance. A Ph.D. is required. Some postdoctoral experience is preferred but not required. Substantial research promise as well as dedication to teaching are paramount. Employment begins August 1, 2000.

Interested applicants should arrange to have a vita, three reference letters, a research statement (including abstracts), and evidence of quality teaching sent to Professor John B. Conway, Probability Search, Mathematics Department, University of Tennessee, Knoxville, TN 37996-1300. Electronic applications are not acceptable. Use of the AMS application form is appreciated. Review of applications will begin December 1 and will continue until the position is filled. Information about the department can be found at http://www.math.utk.edu.

UTK Knoxville is an EEO/AA/Title VI/Title IX/ Section 504/ADA/ADEA institution in the provision of its education and employment programs and services.

TEXAS

SOUTHWESTERN UNIVERSITY
Department of Mathematics and Computer Science
The Department of Mathematics and Computer Science of Southwestern University invites applications for a tenure track position at the assistant professor level beginning August 2000. Candidates must possess a Ph.D. in Mathematics or Statistics, a commitment to excellence in undergraduate teaching, and an active interest in scholarly pursuits. The normal teaching load is three courses per semester. Southwestern University is a selective, undergraduate institution committed to a broad-based liberal arts and sciences education. Affiliated with the United Methodist Church, it has over 1,200 students and a history of stable enrollment. Southwestern's endowment of more than $340 million ranks among the highest per student of undergraduate institutions in the country. The University is located in Georgetown, Texas, 28 miles north of Austin. For more information, visit our web site at www.southwestern.edu. To apply, send letter of application, curriculum vitae, a statement of teaching philosophy, and three current letters of reference to: Southwestern University, Faculty Recruitment Office, Dept. of Mathematics and Computer Science, Job #9913, P.O. Box 770, Georgetown, Texas, 78627-0770. At least one of the letters of reference should address teaching. In order to receive full consideration, applications should be received by December 10, 1999. EOE/M/F.

WISCONSIN

UNIVERSITY OF WISCONSIN-LA CROSSE
The Mathematics Department at the University of Wisconsin-La Crosse invites applications for one or more (depending on budget approval) tenure-track assistant professor position(s) in mathematics, beginning August 2000. Appointment at associate professor level is possible depending on qualifications and experience. Responsibilities: Teach both introductory and advanced mathematics or statistics courses (average 12 hours per semester); maintain a productive program of research in mathematics, statistics, or mathematics education; contribute to departmental, college, and university service activities. Qualifications: Ph.D. in mathematics or statistics (anticipated by August 2000); evidence of successful college/university teaching; experience (or demonstrated potential) in directing undergraduate research/independent projects is desirable. For the first position, preference will be given to outstanding candidates with demonstrated interest/involvement in mathematics education. Applicants should submit an AMS Cover Sheet, a letter of application, a curriculum vitae, undergraduate and graduate transcripts, and arrange to have three letters of recommendation (at least one commenting on teaching) sent to:

Bruce Riley
Mathematics Department
University of Wisconsin-La Crosse
La Crosse, WI 54601

All materials must be received by January 31, 2000. AA/EOE.

SECTION MEETINGS

Allegheny Mountain April 7–8, 2000 South Campus, Community College of Allegheny College, Pittsburgh, PA

Eastern PA & Delaware April 8, 2000 Messiah College, Grantham, PA

Florida March 3-4, 2000 University of South Florida, Tampa, FL

Illinois March 30-April 1, 2000 North Central College, Naperville, IL

Indiana Spring 2000, Earlham College, Richmond, IN

Intermountain March 10–11, 2000 Southern Utah University, Cedar City, UT

Iowa April, 2000 Simpson College, Indianola, IA

Kansas March 31–April 1, 2000 Baker University, Baldwin City, KS

Kentucky March 31 - April 1, 2000 Eastern Kentucky University, Richmond, KY

MD-DC-VA April 28–29, 2000 Bowie State University, Bowie, MD

Metro New York May 7, 2000 Bronx Community College, NY

Michigan May 5–6, 2000 Central Michigan University, Mt. Pleasant, MI

Missouri April 14-15, 2000 Central Missouri State University, Warrensburg, MO

Nebraska-Southeast South Dakota April 2000 Nebraska Wesleyan, Lincoln, NE

New Jersey April 8, 2000 Georgian Court College, Lakewood, NJ

North Central March 31–April 1, 2000 Duluth Convention Center, Duluth, MN

Northeastern June 2000 Providence College, Providence, RI

Northern California February 26, 2000 San Francisco State University

Ohio April 27–28, 2000 Wittenberg University, Springfield, OH

Oklahoma-Arkansas March 31-April 1, 2000 Arkansas Tech University, Russellville, AR

Rocky Mountain April 7-8, 2000 Colorado State University, Ft. Collins, CO

Southeastern March 10-11, 2000 UNC-Charlotte, Charlotte, NC

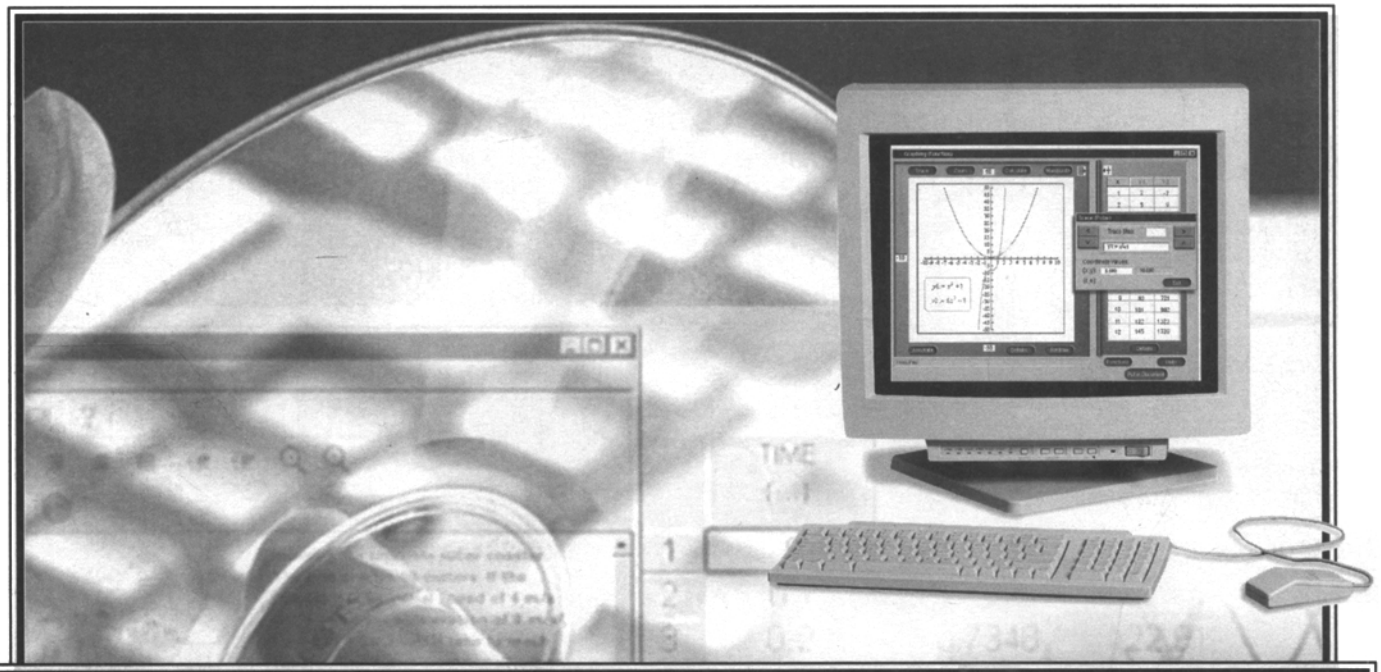
Southern California March 4, 2000 University of California, Los Angeles

Southwestern April 7-8, 2000 Arizona State University, Tempe, AZ

Seaway April 14–15, 2000 SUNY Oswego, Oswego, NY

Texas April 6-8, 2000 University of Texas at Austin, Austin, TX

Wisconsin April 14–15, 2000 University of Wisconsin-Superior, Superior, WI



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